

From: "David Livermore" <d Livermore@integral-corp.com>  
To: "Novak, Madi" <Novak.Elisabeth@epa.gov>  
CC: "Michael PINTO" <michael.pinto@total.com>  
"Eron Dodak" <edodak@integral-corp.com>  
rwebb@dofnw.com  
Date: 6/3/2022 3:12:17 PM  
Subject: RE: HxCDF Summary

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Thanks Madi. You too.

**DAVID LIVERMORE, R.G., L.H.G.** (he/him/his)  
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**INTEGRAL CONSULTING INC.**

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From: Novak, Madi <Novak.Elisabeth@epa.gov>  
Sent: Friday, June 3, 2022 2:33 PM  
To: David Livermore <d Livermore@integral-corp.com>  
Cc: Michael PINTO <michael.pinto@total.com>; Eron Dodak <edodak@integral-corp.com>; rwebb@dofnw.com  
Subject: RE: HxCDF Summary

[CAUTION: External email. Think before you click links or open attachments.]  
Thank you, Have a good weekend.  
Madi

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From: David Livermore <d Livermore@integral-corp.com>  
Sent: Friday, June 3, 2022 12:53 PM  
To: Novak, Madi <Novak.Elisabeth@epa.gov>  
Cc: Michael PINTO <michael.pinto@total.com>; Eron Dodak <edodak@integral-corp.com>; rwebb@dofnw.com  
Subject: FW: HxCDF Summary

Hi Madi,  
Per your request, this is a summary of the HxCDF issue as we have assessed it. I have also attached a few slides from our 2/9/2021 presentation for your reference.

In summary, the fish tissue risk threshold value (10-3) that is the basis for PTW for HxCDF (0.04 µg/kg) does not match the concentrations that were found at the site through the fish tissue sampling and analysis. We believe the HxCDF PTW value is too conservative (over-predicting the area of risk based on the sediment concentration threshold). Our understanding is this could be a result of the food web model (FWM) not accurately predicting the PTW corresponding to the fish tissue risk threshold; however, we don't have the full details of the model and model calibration to assess this issue.

The contribution to the total D/F risk in RM 6.5-7.5W (from the FS Appendix B) based on measured fish tissue data was as follows:

- PeCDF – 62%
- TCDF – 21%
- HxCDF – 8%
- TCDD – 1%
- PeCDD – 1%

PeCDF and TCDF make up the majority of the D/F risk (>80%).

The modeled residual risk (from FS Appendix J), which we assume are also the basis for the sediment PTW concentration

thresholds, tells a different story. Two things about the current FWM results:

- The modeled fish tissue concentrations (i.e., the FWM uses sediment concentration data to back calculate fish tissue) shows D/F PTW risk where the fish tissue data did not.
- The FWM values show that HxCDF has by far the highest risk contribution (essentially 100%)

Based on this analysis it appears that the FWM is overpredicting HxCDF risk by at least an order-of-magnitude, and thus the PTW sediment threshold value is also overcompensating areas with PTW ( $>10^{-3}$ ) risk.

Let me know if you have any other questions or need additional information.

We are hoping that once you and your team have had a chance to review this information that we could have a call to discuss potential methods to address the issue.

Thanks,  
David

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